CARTER CONTROL SYSTEMS

ISO 9001:2000 CERTIFIED

PRODUCT CATALOG

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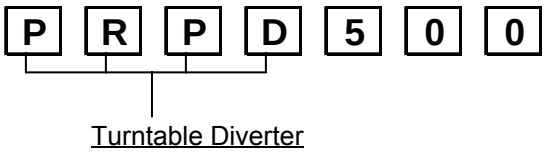
Turntable Diverter – "PRPD" Series

The motorized turntable diverter (platform diverter) is a modular device for use as the physical diverting mechanism in a conveyor system. It consists of a supporting structure that is capable of being mounting in a conveyor frame with a minimum of 15″ back-to-back between the insides of the side frames, turntable mechanism with drive motor, and conveyor rollers. A maintenance control panel is included providing termination points with the rest of the system controls and 24VDC power source.

Standard features include:

- Throughput: Up to 50 trays per minute
- Maximum Mailtray Weight: 70 pounds
- Layout: One (1) Zone – One (1) Motorized power roller driving four (4) idler rollers using O-rings
- Support Structure: 12 Ga. steel
- Mounting: 4-points to a 15″ inside minimal width conveyor frame
- Support Structure Finish: Enamel painted per Fed-Std-595 Safety Yellow color #13655
- Turntable Roller Mounting: 3″ centers
- Power Requirement: 24VDC
- Divert Cycle: Less than 0.25 second
- I/O Control: Allen Bradley 1799-ZCIOV DeviceNet (standalone/network configurations)
- Drive: Electric intelligent linear actuator
- Local Maintenance Control Panel: NEMA Type 12 with the following components:
    - Green READY push-to-test pilot light
    - NORMAL/TEST mode switch
    - TEST pushbutton
    - Allen Bradley 1799-ZCIOV DeviceNet Control card for communications with next level of controls
    - Termination points for system supplied 24VDC control and network power
- Guarding – 3-piece pinch point safety. Enamel painted Fed-Std-595 Safety Yellow color #13655

Model Configuration



As required, the turntable diverter is sent a command from the next level of controls to rotate to the proper orientation for the specified mail tray to exit into a divert lane or stay in the straight through flow. The turntable diverter stays in its current position until directed otherwise by the controls. Feedback from the linear actuator for the turntable provides the turntable diverter position to the controls, and if it does not reach its required position within a required 1.5 second time limitation, the conveyor is stopped. If a fault, jam or turntable positioning time limitation occurs, a signal is available for use within the accompanying control panel to indicate a Jam condition.

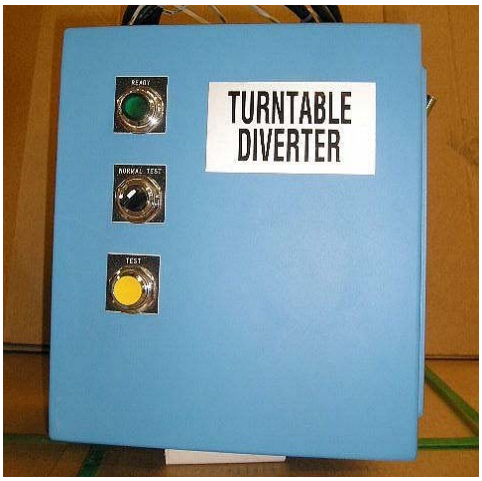
The turntable diverter conveyor top surface uses a single motorized roller connected with four idler rollers via O-rings. The motorized roller is supplied with an RC Module that is mounted on the turntable diverter frame. The 5 rollers have a rubber coating to minimize mail tray slippage across them. These rollers are mounted on a circular plate that rides on cam followers and is rotated using a linear actuator, equipped with an arm. At the end of the arm is a pivot mechanism that attaches to the support plate. As the arm extends or retracts, it rotates the plate and attached roller assembly to the desired orientation. The linear actuator supplies inputs to the controls used to determine the position of the turntable.

In the event of a continuous actuate signal due to malfunction or for other reasons, the turntable diverter does not continue to cycle. In the event the turntable diverter does not complete its cycle within 1.5 seconds the local controls provide a signal for use to that effect.

To test the diverter, each maintenance control panel is equipped with a two-position maintenance switch labeled “TEST” and “NORMAL.” When in the TEST position, the protective circuits are bypassed and the green pilot light is extinguished. The TEST pushbutton is provided and installed in the control panel and when depressed, causes the diverter to cycle once and only once irrespective of the duration of the depression. The TEST pushbutton is activated only when the maintenance TEST/NORMAL switch is in the TEST position.

Safety guarding is included with the turntable diverter. The guarding is 3-piece in design with stationary end guards and a center guard that rotates with the turntable diverter. The composite design closes gaps around the rotating mechanism, thereby reducing the possibility of injury to personnel.

TURNTABLE DIVERTER

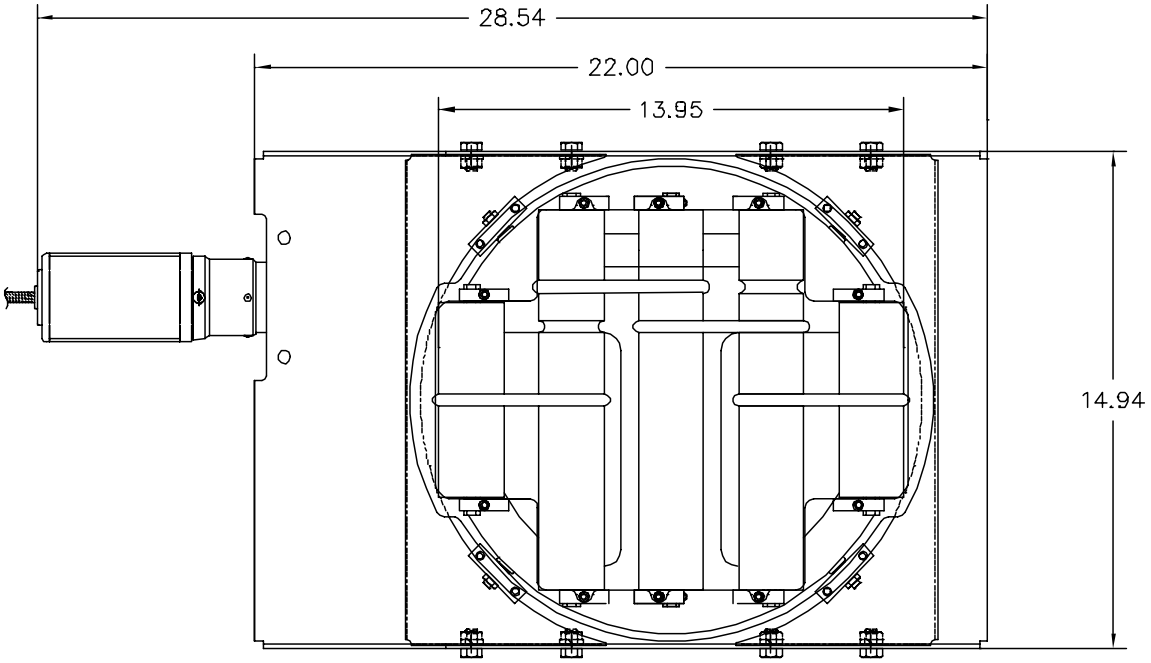


CONTROL PANEL

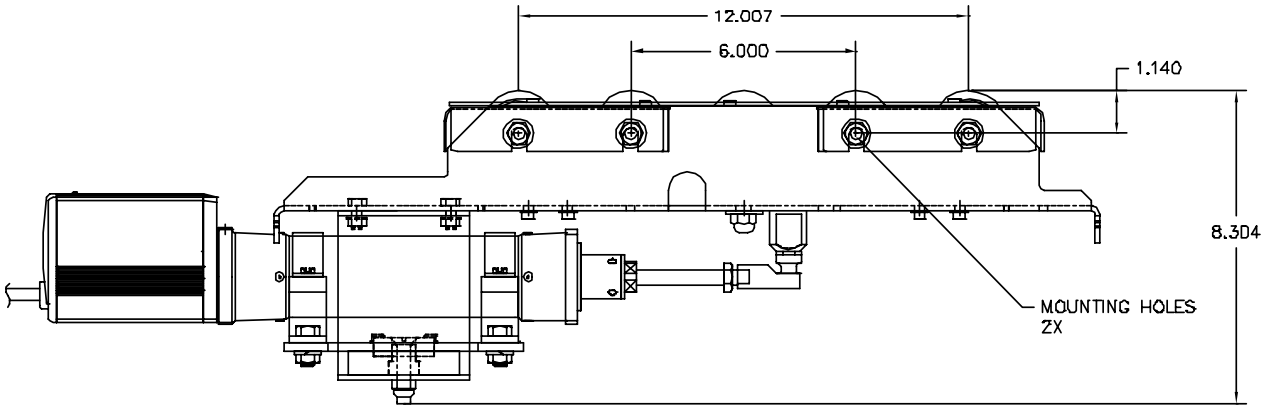
Options

- Standard 15″ mounting width
- Other mounting widths available

Dimensions



POWERED ROLLER TURNTABLE



LINEAR ACTUATOR

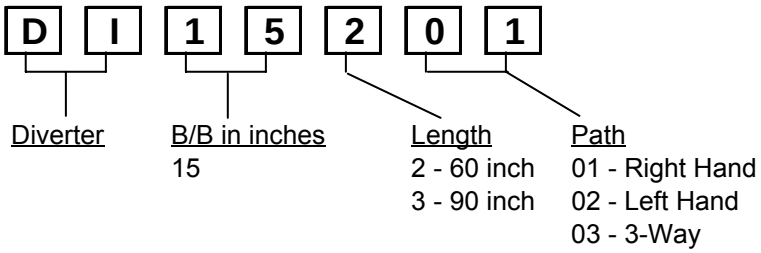
Turntable Diverter Conveyor – "DI" Series

Motorized roller turntable diverter sections of conveyor permit selective diversion of mail product to flow straight or to be diverted to another line. Designs are available 2-way (left-hand or right-hand) or 3-way and utilizes the CCS PRPD powered turntable diverter as the diverting mechanism. Upright rollers are used to assist in mail tray flow at the divert point. Stack lights are incorporated for visual indications of jams/malfunctions. Sensors are provided to detect full and jam conditions.

- Throughput: Nominal – 30 trays per minute, Optional – up to 50 trays per minute
- Maximum Mailtray Weight: 70 pounds
- Divert Angle: 30° from the normal line of flow
- Layout: Zones – Motorized power roller driving idler rollers using O-rings (various configurations)
- Frame: 12 Ga. steel with 2.75″ flanges and cross-member supports
- Conveyor Finish: Powder coated per Fed-Std-595 USPS Mail Tray Blue color #25230
- Roller Mounting: TOR 2″ below top of frame with spacing on 3″ centers
- Expansion: Butt couplings to join adjacent sections
- Power Requirement: 24VDC
- Divert Cycle: Less than 0.25 second
- Mail Product Detection: Photoelectric sensors
- Red JAM Lantern – One (1) standard and two (2) for 3-way
- I/O Control: Allen Bradley 1799-ZCIOV DeviceNet (standalone/network configurations)
- Local Maintenance Control Panel: NEMA Type 12 with the following components:
    - Green READY push-to-test pilot light
    - NORMAL/TEST mode switch
    - TEST pushbutton
    - DeviceNet Control card for communications with next level of controls
    - Termination points for system supplied 24VDC control and network power
- Wiring/Controls Containment: Within conveyor frames and local control panel
- Mounting Capabilities: Overhead and floor
- Guarding – 3-piece pinch point safety. Fed-Std-595 Safety Yellow color #13655

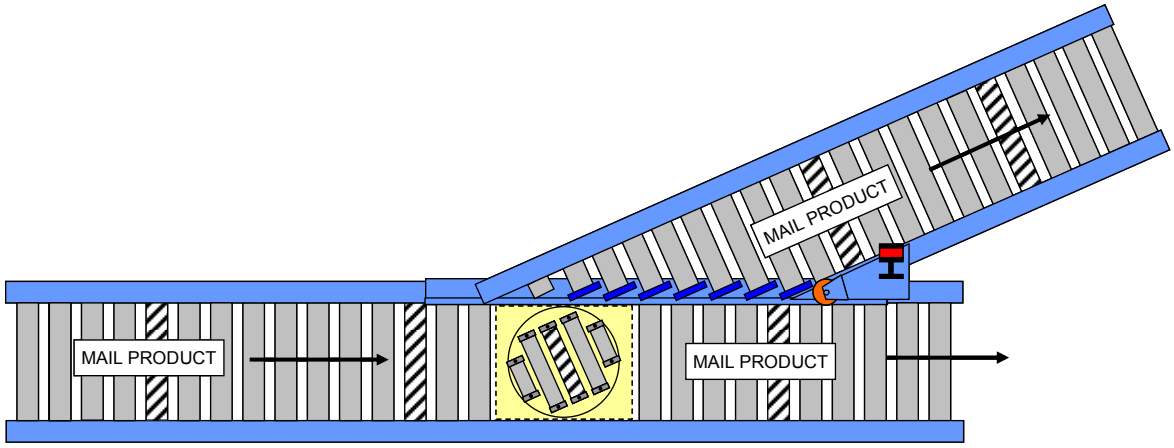
Functionality of the 2-Way (left-hand or right-hand) versus the 3-Way Diverter are identical with the only difference being the second diverting lane and associated conveyor framing, rollers, components, lantern and wiring.

Model Configuration



As a mail tray approaches the turntable diverter from the feeding conveyor, a sensor detects its presence. The mail tray destination, as predefined in upper level control software lookup tables, determines how the mail tray is processed. As required, the turntable diverter is sent a command to rotate to the proper orientation for the specified mail tray to exit into a divert lane (at a 30° angle of rotation) or stay in the straight through flow. The turntable stays in its current position until directed otherwise by the controls. Its powered roller is activated along with the assisting vertical powered rollers after the turntable. The mail tray moves along this path and clears the diversion point. Beaded value-guide rail is included along the inside frame of the conveyor at the divert point to prevent catching or dragging of mail product along the frame as it changes it path of direction.

Mail trays move into the diverter in a metered flow. Feedback from the electric drive for the turntable provides the turntable position to the controls, and if it does not reach its required position within a required 1.5 second time limitation, the conveyor is stopped. If a fault, jam or turntable positioning time limitation occurs, a Red lantern for the specified lane is activated and the conveyor system stops. A general representation of the flow through a 90″ left-hand version of the turntable diverter follows.



90″ LEFT-HAND TURNTABLE DIVERTER CONVEYOR– MAIL PRODUCT FLOW

The only difference between the 60″ and 90″ models is that the first zone (30″) where mail product enters the merge is removed from the design for the 60″ model.

The motorized roller diverter conveyor utilizes CCS powered roller conveyor with an input, turntable diverter mechanism, and diverting conveyor sections. Retro-reflective sensor/reflector

combinations are used to detect where a mail tray currently is located in a zone on the conveyor. The conveyor utilizes the CCS PRPD Series turntable diverter mechanism that rotates to the desired position to divert the mail tray. Safety guarding is included to close gaps around the rotating turntable mechanism.

Refer to the previous listing for details on the PRPD Turntable Diverter

The rollers used in the divert lanes, immediately after the turntable mechanism, start off short and gradually increase in length to the point of meeting the inputs to the divert lanes.

Diverter controls include: a photoelectric sensing system (including Entry, Jam and Full sensors), control logic, and pushbuttons and switches, and lanterns. A system supplied 24VDC power source is required for use by the turntable diverter and its local controls and terminates within the turntable's maintenance control panel.

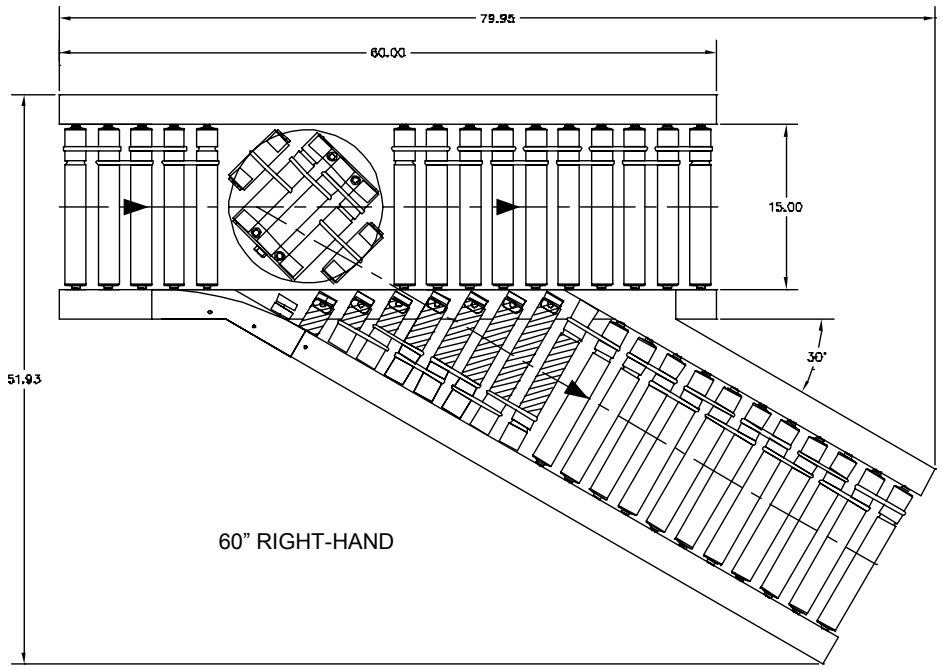
RIGHT-HAND TURNTABLE DIVERTER CONVEYOR

Options

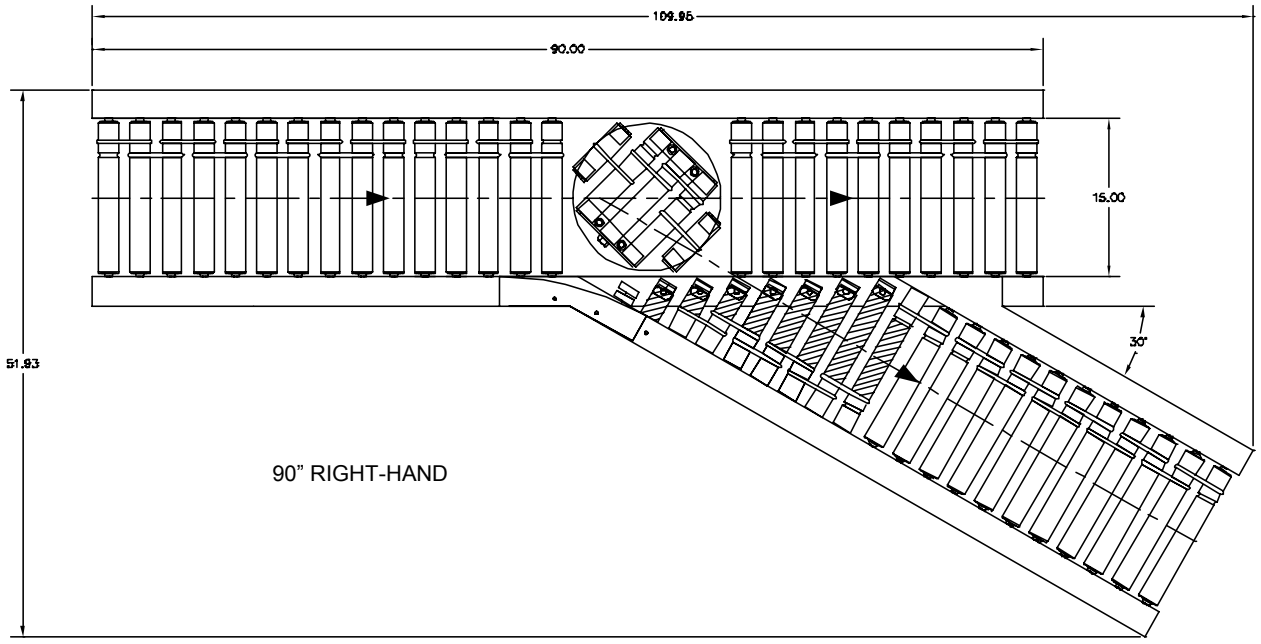
- Left-Hand, Right-Hand, 3-Way
- Standard: 60″ and 90″ lengths in a 15″ width; Other widths available
- Controls – I/O Configurations (Master/Slave)
- Speeds up to 50 trays/minute

Dimensions

The Left-Hand and Right-Hand Diverters are mirrored images.



60” RIGHT-HAND



90” RIGHT-HAND